Amendments to the Claims

1. (Currently Amended) A method of identifying an article of interest, comprising:

providing one of a plurality of RF antennas each having a non-linear element and being resonant at one of a plurality of different frequencies positioned on an article of interest,

interrogating said one RF antenna with RF energy of a first frequency,

converting said interrogating RF energy into reflected RF energy of a different frequency from said first frequency, ~~and~~

sensing said reflected RF energy,

determining a difference between said first frequency and said different frequency by subtracting one of said first frequency and said different frequency from the other of said first frequency and said different frequency, and

on the basis of ~~a~~ said difference between said first frequency and said different frequency determining if a specific said antenna is present.

2. (Original) The method of claim 1 including said non-linear element is a rectifying diode.

3. (Original) The method of claim 2 including said specific antenna is present and said different frequency being about double said first frequency.

4. (Previously Presented) The method of claim 1 including said one RF antenna providing a half wave rectified sine wave from said interrogating RF energy.

5. (Original) The method of claim 4 including said interrogating RF energy producing a sine wave.

6. (Previously Presented) The method of claim 4 including said half wave rectified sine wave has a fundamental Fourier series which is about double the frequency of said sine wave.

7. (Original) The method of claim 1 including employing two said interrogating frequencies in determining if an article of interest is present.

8. (Original) The method of claim 7 including employing a spectrum analyzer in analyzing said different frequency.

9. (Original) The method of claim 1 including employing a binary analysis in determining if an article of interest is present.

10. (Original) The method of claim 7 including employing a spectrum analyzer structured to monitor each interrogating frequency in determining if an article of interest is present.

11. (Original) The method of claim 9 including employing said method to provide specific identification of the antenna if an article of interest is present.

12. (Original) The method of claim 1 including a second non-linear element

cooperating with said non-linear element to provide a variable readout which is a function of a specific physical condition.

13. (Original) The method of claim 1 including said physical condition being a condition selected from the group consisting of pressure, temperature, pH, chemical concentrations and humidity, chemical environment, biological environment, radiation, and light.

14. (Original) The method of claim 12 including employing as said non-linear elements a variable non-linear element.

15. (Currently Amended) Apparatus for determining if an article of interest is present, comprising:

said article of interest having at least one antenna, one of said at least one antenna being resonant at one frequency of a plurality of available frequencies,

a non-linear element operatively associated with said one of said at least one antenna ~~said antenna~~,

an RF frequency generator for directing RF energy of a particular frequency to said one of said at least one antenna, said non-linear element causing said one of said at least one antenna to transmit reflected RF energy in response to receipt of said RF energy, said reflected RF energy having a reflected frequency that is different than said directed particular frequency,

a detector for receiving said reflected RF energy from said one of said at least one antenna, and

a processor adapted to determine a difference between said directed particular frequency and said reflected frequency by subtracting one of said directed particular frequency and said reflected frequency from the other of said directed particular frequency and said reflected frequency and to determine ~~for determining~~ from a said difference between said reflected frequency and said directed particular frequency whether the one of said at least one antenna is a specific antenna.

16. (Original) The apparatus of claim 15 including said non-linear element being a rectifying diode.

17. (Original) The apparatus of claim 15 including said RF frequency generator being structured to produce interrogating RF energy in the form of a sine wave.

18. (Currently Amended) The apparatus of claim 17 including said one of said at least one antenna being structured to produce a half wave rectified sine wave from said interrogating RF energy.

19. (Currently Amended) The apparatus of claim 18 including said one of said at least one antenna being structured to provide said half wave rectified sine wave at a fundamental Fourier series component which is about double the frequency of said sine wave.

20. (Original) The apparatus of claim 16 including said RF frequency generator being structured to provide at least two said interrogating RF frequencies.

21. (Original) The apparatus of claim 16 including a spectrum analyzer for analyzing said different frequencies.

22. (Original) The apparatus of claim 16 including a second non-linear element cooperating with said non-linear element to provide a variable readout which is a function of a specific physical condition.

23. (Original) The apparatus of claim 22 including said physical condition being a condition selected from the group consisting of pressure, temperature, pH, chemical concentrations, humidity, chemical environment, biological environment, radiation, and light.

24. (Currently Amended) A method of monitoring an ambient physical property, comprising:

providing an antenna having a non-linear element whose response depends on the physical property being monitored,

interrogating said RF antenna with RF energy of a first frequency,

converting the interrogating RF energy into reflected RF energy of a different frequency from said first frequency, said different frequency being dependent on the physical property being monitored, ~~and~~

sensing said reflected RF energy,

determining a difference between said first frequency and said different frequency by subtracting one of said first frequency and said different frequency from the other of said first frequency and said different frequency, and

on the basis of ~~a~~ said difference between said first frequency and said different frequency determining the state of said physical property.

25. (Original) The method of claim 24 wherein said non-linear element is a rectifying diode.

26. (Previously Presented) The method of claim 25 wherein said different frequency being about double said first frequency.

27. (Previously Presented) The method of claim 24 including said antenna providing a half wave rectified sine wave from said interrogating RF energy.

28. (Original) The method of claim 27 including said interrogating RF energy producing a sine wave.

29. (Previously Presented) The method of claim 27 including said half wave rectified sine wave has a fundamental Fourier series which is about double the frequency of said sine wave.

30. (Original) The method of claim 24 including employing a spectrum analyzer in analyzing said different frequency.

31. (Original) The method of claim 24 including employing a second non-linear element cooperating with said non-linear element to provide a determination regarding whether an article of interest is present.

32. (Previously Presented) The method of claim 24 including said ambient physical property being a condition selected from the group consisting of pressure, temperature, pH, chemical concentrations and humidity, chemical environment, biological environment, radiation, and light.

33. (Currently Amended) Apparatus for monitoring an ambient physical property, comprising:

an antenna being resonant at one frequency of a plurality of available frequencies,

a non-linear element operatively associated with said antenna whose response depends on the physical property being monitored,

an RF frequency generator for directing RF energy at a particular frequency to said antenna, said non-linear element causing said antenna to transmit reflected RF energy in response to receipt of said RF energy, said reflected RF energy having a reflected frequency that is different than said directed particular frequency and that is dependent on the physical property being monitored,

a detector for receiving said reflected RF energy from said antenna~~, said reflected RF energy having a different frequency that is dependent on the physical property being monitored~~, and

a processor adapted to determine a difference between said particular frequency and said reflected frequency by subtracting one of said particular frequency and said reflected frequency from the other of said particular frequency and said reflected frequency and to determine ~~for determining~~ from a said difference between said particular frequency and said ~~different~~ reflected frequency the state of the physical property being monitored.

34. (Previously Presented) The apparatus of claim 33 including said non-linear element being a rectifying diode.

35. (Previously Presented) The apparatus of claim 33 including said RF frequency generator being structured to produce interrogating RF energy in the form of a sine wave.

36. (Previously Presented) The apparatus of claim 35 including said antenna being structured to produce a half wave rectified sine wave from said interrogating RF energy.

37. (Previously Presented) The apparatus of claim 36 including said antenna being structured to provide said half wave rectified sine wave at a fundamental Fourier series component which is about double the frequency of said sine wave.

38. (Previously Presented) The apparatus of claim 34 including said RF

frequency generator being structured to provide at least two said interrogating RF frequencies.

39. (Previously Presented) The apparatus of claim 34 including a spectrum analyzer for analyzing said different frequencies.

40. (Previously Presented) The apparatus of claim 34 including a second non-linear element cooperating with said non-linear element to provide a variable readout which is a function of said physical property.

41. (Previously Presented) The apparatus of claim 40 including a second non-linear element cooperating with said non-linear element to provide a variable readout which is a function of said physical property.